

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

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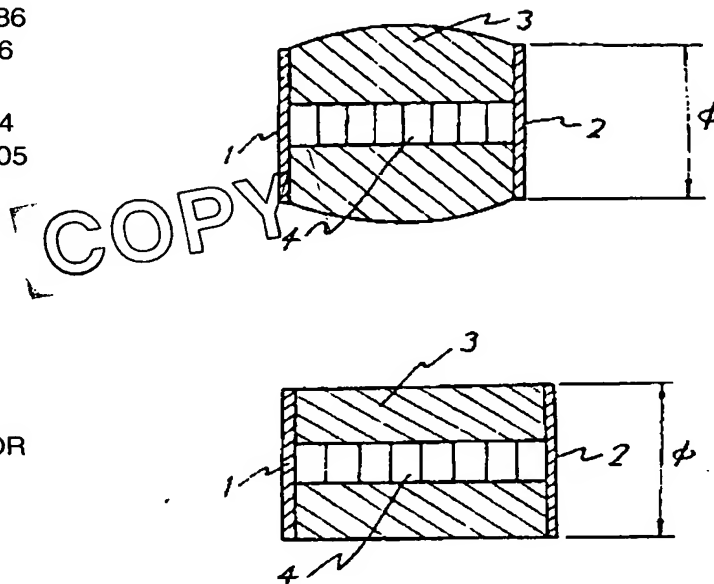
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TITLE : DISPLACEMENT GENERATOR



**ABSTRACT :** PURPOSE: To obtain a displacement generator which can displace a laminated piezoelectric element increased in the displacement by providing the laminated piezoelectric element, a pair of retainers secured to both ends of the element and elastic members contacted at both ends with the pair of retainers.

**CONSTITUTION:** A displacement generator has retainers 1, 2 mounted at both ends of a laminated piezoelectric element 4, and rubberlike elastic members 3 provided to enclose the element 4 to be compressed by the retainers 1, 2. Since the members 3 are engaged to be compressed by the retainers 1, 2 in the normal state, the outer peripheral surfaces of the members 3 are swelled larger than the diameter  $\phi$  of the retainers 1, 2. If a voltage is applied to the element 4 to elongate it, the members 3 are returned to the not compressed state in response to the voltage, and the diameter of the members 3 decreases. Thus, the voltage of the element 4 is controlled to becomes any of the above states, thereby obtaining a large displacement of the diameter of the members 3.

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